REMARKS

This application has been reviewed in light of the Office Action dated October 4, 2005. In response, Claims 1, 11, 36, 38, 47, 48, 55, 60, 61, 63, 65, 69, 88 and 89 have been amended to even further clarify the claimed subject matter. Claims 27-35 and 84-87 have been allowed. Claims 40 and 58 have been canceled without prejudice or disclaimer of subject matter. Claims 1-26, 36-39, 41-57, 59-83, 88, and 89 are pending. Claims 1, 11, 27, 36, 48, 55, 65, 69, 84, 88, and 89 are in independent form. Favorable reconsideration is requested.

Allowable Subject Matter

Applicant gratefully acknowledges the allowance of Claims 27-35 and 84-87.

Remaining Claims

Claims 1-26, 36-83, 88, and 89 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,081,359 (*Takehana et al.*) in view of U.S. Patent No. 5,299,293 (*Mestdagh et al.*) and further in view of U.S. Patent No. 6,915,075 (*Oberg et al.*).

While not conceding the propriety of the rejection, independent Claims 1, 11, 36, 48, 55, 65, 69, 88, and 89 have been amended to even further clarify the claimed subject matter. Applicant submits that these claims are allowable for the following reasons.

Initially, *Oberg et al.* has a U.S. filing date (August 23, 2000) which is later than the December 16, 1999 filing date of the present application. Although *Oberg et al.* indicates on its face that it is a continuation of International Patent Application No. PCT/SE99/00256, filed February 24, 1999, the earliest effective reference filing date to which *Oberg et al.* is entitled is August 23, 2000 rather than February 24, 1999, because the International Application was filed prior to November 29, 2000. MPEP § 2136.03 II(B)(3) (Rev.2, May 2004) ("For U.S. application publications of applications that claim the benefit under 35 U.S.C. 120 . . . of an international application filed prior to November 29, 2000, apply the reference under 35 U.S.C. 102(e) as of the actual filing date of the later-filed U.S. application that claimed the benefit of the international application."). As such, because August 23, 2000 is later than the December 16, 1999 filing date of the present application, *Oberg et al.* does not qualify as prior art against the present application under Section 102(e), nor is it understood to qualify as prior art under any other section of 35 U.S.C. 102. For these reasons, it is believed that all of the Section 103 rejections are obviated, and their withdrawal is respectfully requested. Nonetheless, the following comments are offered as well, and it is submitted that the presently pending claims also are patentable over the art relied on by the Examiner for the following additional reasons.

Independent Claims 1, 48, and 88

Independent Claim 1 is directed to a line node for a communication network, the line node being bidirectionally coupled to at least one first terminal through at least one first link and to at least one second terminal through at least one second link. The

line node includes at least one first communication path having a first end coupled to the at least one first link and a second end coupled to the at least one second link. The at least one first communication path is used for routing signals received from the at least one first terminal towards the at least one second terminal. The line node includes at least one splitter having an input, a first output, and a second output. The input and the first output are coupled in the at least one communication path, and the at least one splitter is responsive to receiving a signal for outputting first and second signal portions through the first and second outputs, respectively. The line node includes a first switch having an output coupled to the at least one second link, wherein the second output of the at least one splitter is connected directly to the first switch and not through another splitter. The line node also includes a detector configured and positioned to detect a failure in the at least one first communication path by monitoring a predetermined point in the at least one first communication path. The line node also includes a controller coupled to the detector and to the first switch. the controller is responsive to the detector detecting a failure in the at least one first communication path for controlling the first switch to couple the second output of the splitter to the at least one second link, for routing the second signal portion towards the at least one second terminal.

Notable features of Claim 1 are the second output of the splitter being connected directly to the first switch and not through another splitter, and the detector detecting a failure by monitoring a predetermined point in at least one communication path.

Takehana et al. is understood to use a beam splitter 50 that is connected to an optical switch 7 through another beam splitter 51. The beam splitter 50 is not

understood to be directly connected to the optical switch 7. Also, the apparatus of *Takehana et al.* is a unidirectional transmitting and receiving apparatus.

As the Office Action concedes, *Takehana et al.* does not disclose or suggest that a second output of at least one splitter is connected directly to a first switch, and a line node that is bidirectionally coupled to at least one first terminal through at least one first link and to at least one second terminal through at least one second link, as recited by Claim 1.

Moreover, *Takehana et al.* detects a failure in a communication path by using the auxiliary system controller 4 to perform a comparison between signals monitored at two points; at a point prior to the transponder input through supervising unit 3 and signals monitored at a point after the transponder output through supervising unit 5. (See column 4, line 64 to column 5, line 6). Hence, *Takehana et al.* requires monitoring of two points to detect a failure, whereas the detector of Claim 1 does not necessarily require monitoring of two points to detect a failure.

Mestdagh et al., is understood to disclose a protection arrangement for an optical transmitter or receiver device which includes a spare optical transmit or receive module consisting of a switch, circuitry to detect a fault, and a spare transmit or receiver circuitry. A fault is detected by test circuits which are part of the optical transmit line circuits or optical receive line circuits in each communication path (See column 3, lines 18-26; column 6, line 65 - column 7, line 4; Figs. 1, 5, 7 and 8). The test circuit in each communication path outputs the digital signal "0" when the associated transmitter or receiver is working correctly, and outputs a digital "1" when it is defective. (See column 3,

lines 26-29). An interpretation module uses the digital signal from each test circuit to generate control signals for the switching circuit and spare transmit line circuit in order to reroute signals for paths with defective transmitter or receiver circuits. (See column 3, lines 29-41).

Mestdagh et al. is relied on in the Office Action as teaching a second output of a splitter connected to a first switch, but that reference is not seen to teach or suggest the bidirectional features of Claim 1, let alone a bidirectional line node having the elements recited in Claim 1.

Oberg et al. is understood to teach a bidirectional optical link that includes a protection arrangement partially consisting of a set of wholly redundant transmitters and receivers (i.e. one spare transmitter device per each ordinary transmitter device, etc.). (See column 2, lines 52-64). Transmitter fault detection is performed in the transponder by a power detector provided on its input terminal. (See column 5, lines 54-59). Receiver fault detection is performed in the signal processing circuit of the access equipment. (See column 6, lines 3-8).

Oberg et al. is relied on in the Office Action as teaching a line node bidirectionally coupled to at least one terminal through links. However, that reference is not seen to teach or suggest a line node having the features recited in Claim 1, wherein a splitter output is directly connected to a switch for routing a signal to a terminal.

The Office Action states that:

"it would have been obvious to one having skill in the art at the time the invention was made to incorporate the second output of the at least one splitter is connected directly to the first switch and the line node being bidirectionally coupled to at

least one first terminal through at least one first link and to at least one second terminal through at least one second link as taught by Mestdagh and Oberg in the system of Takehana."

However, the forgoing assertion is respectfully disagreed because in order to connect the "at least one splitter (i.e., optical dividers 50, Fig. 2)" of *Takehana et al.* directly to the "first switch (i.e., optical switch 7, Fig. 2)" of *Takehana et al.*, or otherwise modify *Takehana et al.* by incorporating the splitter connected to the switch taught by *Mestdagh et al.,* as suggested in the Office Action, it would be necessary to eliminate the splitter 51 of *Takehana et al.* Such a modification would detrimentally prevent transponder unit supervising unit 3 of *Takehana et al.* from receiving signals that enter the transponders 2-1 through 2-n since those signals normally are provided to unit 3 from splitters 51. As a result, the transmitting auxiliary system controller 4 would not be able to compare signals inputted into and outputted from the transponders 2-1 to 2-n as described from column 4, line 64 to column 5, line 6 of *Takehana et al.*, and consequently also would not be able to determine when a failure occurs that would require the use of the auxiliary system.

Thus, the modification proposed in the Office Action would render *Takehana et al.* unsuitable for its intended purpose of detecting such failures. Because it is well established that, "[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification", MPEP § 2143.01 (citation omitted), and such a suggestion or motivation must exist in order to establish a *prima facie* case of obviousness, MPEP § 2143, the Office Action has failed to establish a *prima facie* case of

obviousness against Claim 1. Accordingly, that claim is believed to be clearly patentable over the references relied on in the Office Action.

Independent Claims 48 and 88 are method claims reciting features that are similar in many relevant respects to those of Claim 1, and also are believed to be patentable over those references for substantially similar reasons as is Claim 1.

Accordingly, it is respectfully requested that the rejection of Claims 1, 48 and 88 be withdrawn.

If, despite the foregoing remarks, the Examiner still refuses to withdraw the rejection of those claims, he is respectfully requested to explain how *Takehana et al.* would be able to operate for its intended purpose of detecting failures without using the splitters 51 and without monitoring more than a single point.

Independent Claims 11, 55, 69 and 89

Independent Claim 11 recites a line node for a communication network, the line node being coupled to each of a plurality of first terminals through both a first link and a separate second link, the line node also being coupled to at least one second terminal through at least one third link. The line node includes, *inter alia*, a switch having a plurality of first terminals and a second terminal, each of the first terminals of the switch being coupled to a respective one of the second links. The second terminal of the switch is coupled to at least one third link. The line node also includes a detector configured and positioned to detect a failure in at least one of the communication paths by monitoring a predetermined point in at least one of the communication paths, and a controller responsive

to the detector detecting a failure in a communication path for controlling the switch to couple a corresponding one of the second links to the at least one third link. This provides an alternate route through those links for routing the signals.

By virtue of this arrangement, a communication failure can be compensated for because each first terminal is coupled to the line node by first and second links. That is, during normal communication, a signal can be transmitted from a first terminal to the second terminal through the line node by using the first link. When the detector detects a communication failure, a signal is transmitted from the first terminal to the second terminal through the line node by using a separate second link and the switch, to provide an alternate protection route.

Takehana et al. is understood to relate to a system that protects against a line failure by splitting a beam so that it enters an auxiliary or stand-by system. Figure 4 of the *Takehana et al.* patent is understood to show terminals 1-1 through 1-4 that are connected by a *single* signal line to respective splitters 50 of the transmitting and receiving apparatus. The use of first and second links coupling terminals 1-1 through 1-4 to a line node is not understood to be shown or suggested, let alone does *Takehana et al.* provide protection against communication failure by providing a line node coupled to each of a plurality of first terminals through both a first link and a second link. Indeed, nothing has been found, or pointed out, in *Takehana et al.* that would disclose or suggest a line node as set forth in Claim 11 wherein the node is coupled to each of first terminals through both a first link and a separate, second link, and a switch couples a corresponding second link to at least one third link coupled to at least one second terminal, for providing an alternative

route, in response to a failure being detected, and wherein each link is communicatively bidirectional.

The *Mestdagh et al.* patent is understood to emphasize the processing of signals in an optical transmitter/receiver device and that input signals I1-In are split before being connected to switching circuit S. Therefore, no second link of a first terminal is connected to the switch. *Oberg et al.* refers to various embodiments in which standby transmissions are provided through a switch 23 and standby receptions are provided through a switch 25. However, nothing in either *Mestdagh et al.* or *Oberg et al.* is understood to disclose or suggest the above-emphasized features of Claim 11, particularly with respect to the use of a switch coupled to bidirectional links.

Accordingly, because neither *Takehana et al., Mestdagh et al.,* nor *Oberg et al.* teaches or suggests the above-emphasized features of Claim 11, that claim is believed to be clearly patentable over those references, whether considered separately or in combination.

Moreover, the Office Action is not understood to have established the factual basis for a motivation to modify *Takehana et al.*, as required by MPEP § 2142. In order to modify *Takehana et al.* as proposed in the Office Action, first and second links would need to link the terminals 1-1 to1-4 to the transmission system in *Takehana et al.* However, because *Takehana et al.* achieves redundancy through the use of two beam splitters 50 and 51, which route a signal to a switch 7 in the event of failure of one of the transponders 2-1 to 2-n, there would be no need or motivation to couple the terminals 1-1 to 1-4 to the transmission system through both a first link and a second link. Accordingly,

it is believed that the Office Action has not satisfied its burden of proof to establish a sufficient factual basis for any motivation to modify *Takehana et al.*

Furthermore, if first and second links were employed in place of the beam splitters 50 and 51 in *Takehana et al.*, it is not understood how *Takehana et al.* would be able to protect against a communication failure, since, as pointed out above, eliminating the splitter 51 would prevent transponder unit supervising unit 3 from receiving signals and consequently prevent the system from determining when a failure occurs. Again, such a modification would render *Takehana et al.* unsatisfactory for its intended purpose.

For these additional reasons, the Office Action has failed to establish a *prima facie* case of obviousness against Claim 11, as required by MPEP § 2142. Accordingly, Claim 11 is believed to be clearly patentable over the references relied on in the Office Action, and thus withdrawal of the rejection of Claim 11 is respectfully requested.

Independent Claims 55, 69 and 89 recite features that are similar in many relevant respects to those of Claim 11, and also are believed to be clearly patentable over those references for substantially the same reasons as is Claim 11.

Independent Claims 36 and 65

Independent Claim 36 has been amended to even further clarify the claimed subject matter. That claim is directed to a communication network, and recites features that are similar in at least some respects to those of line node Claim 27, which has been allowed. Claim 36 also is believed to be allowable over *Takehana et al., Mestdagh et al.,*

and *Oberg et al.* because none of those references is seen to teach or suggest a communication network that includes the specific arrangement of the switches and splitter recited in Claim 36.

Independent Claim 65 is a method claim that corresponds in at least some respects to Claim 36. The method operates at least one line node of a communication network, the line node having a plurality of communication paths, and comprises receiving signals at the line node from a third terminal over a fourth link, and bidirectionally transferring signals communicated between the first and second terminals, through the first link, the first communication path, and the second link. The method also includes splitting signals received over the fourth link into corresponding signal portions and forwarding a first one of the signal portions through the second communication path towards the second terminal, and not splitting signals traversing the first communication path. The method monitors for a failure in at least one of the first and second communication paths. In response to detecting a failure in the at least one first communication path, at least one switch is operated to couple a corresponding third link to the at least one second link. In response to detecting a failure in the second communication path, at least one switch is operated to route a second one of the signal portions through an alternate communication path towards the second terminal.

The teachings of *Takehana et al., Mestdagh et al.,* and *Oberg et al.* were described above. It is respectfully that none of those references is understood to teach or suggest a method having the features of Claim 65. Accordingly, that claim is believed to

be clearly patentable over those references, whether considered separately or in combination.

Accordingly, withdrawal of the rejection of Claims 36 and 65 is respectfully requested.

The other claims in this application are each dependent from the independent claims discussed above, and also are believed to be patentable over the art relied on in the Office Action, at least for the reason that each depends from a patentable base claim. Nonetheless, individual reconsideration of each dependent claims is respectfully solicited.

Conclusion

In view of the above amendments and remarks, the application is believed to be in allowable form. Therefore, favorable reconsideration and early passage to issue are respectfully solicited. If the Examiner believes that additional issues remain outstanding, the Examiner is respectfully requested to contact the undersigned attorney.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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